# Design Guide Checklist

## Data Center Integrated Building Envelopes

Data center planning requires a focused integrated building envelope approach to meet critical airtightness, watertightness, and long-term durability and performance goals. These facilities protect digital infrastructure valued in the millions, where uptime is paramount. Identifying key performance drivers helps guide early decisions that ensure continuity, redundancy, and resilience across all envelope systems.

This checklist is tailored for the unique demands of data center facilities to highlight key considerations, define project specific performance criteria, and maintain an integrated building envelope system. Contact Carlisle Design Services for more information at Design.Services@Carlisle.com.

### Carlisle Design Services

| Contact Carlisle Design Services for project specific design services. | |
|---|---|
| Quality assurance and performance review | • International building code criteria review<br>• Energy modeling review for roof and wall systems |
| Integrated system guidance | • Roofing system and tapered insulation design assist<br>• Exterior wall air, thermal, and watertightness drawing or detail verification<br>• Below-grade waterproofing suitability<br>• Critical tie-in condition evaluation |
| Warranty verification | • Review below-grade, exterior wall, and roofing system design and specification for system specific warranty eligibility and critical tie-in compliance |

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Date: _____

Project name: _____

Project address: _____

## Define Building Performance

Establish clear performance priorities in early design phases to protect temperature specific project needs, ensure system compatibility, and meet rigorous demands of mission-critical environments.

### Definitions

| Uptime institute data center tier classifications | |
|---|---|
| Tier I | • Protects against human error disruptions.<br>• Requires complete shutdown for preventative maintenance and repairs.<br>• Does not protect against unexpected failure or outages. |
| Tier II | • Redundancies for power and cooling to plan and protect during maintenance disruptions.<br>• Components can be removed without shutdown.<br>• Does not protect against unexpected failure or outages. |
| Tier III | • Redundant distribution paths in building design and operations.<br>• Data center to be concurrently maintained in critical environments.<br>• Does not require shutdown for equipment maintenance or replacement. |
| Tier IV | • Redundant capacity and distribution paths to prevent unexpected failure or outages.<br>• Several independent and physically isolated systems to avoid system compromises.<br>• Provides fault tolerances to avoid IT operation disruptions. |

### Resources

| | | |
|---|---|---|
| **Air leakage** | | |
| • Air and vapor barrier for roofs<br>• Performance testing | • Air barrier assembly air leakage<br>• Air Barrier Association of America | • Whole building air leakage testing |
| **Watertightness** | | |
| • Waterproofing risk assessment<br>• Blindside waterproofing tie-ins | • Water penetration testing | • Electronic Leak Detection |
| **Thermal resistance** | | |
| • Testing for R-value | • EPA Complaint | • No CFCs, HFC, HCFCs |
| **Wind resistance** | | |
| Roofing Systems | • Roofing design references<br>• FM 1-90 vs ASCE 7 | • ASCE vs FM<br>• FM Approved systems |
| Perimeter edge metal | • ANSI/SPRI/GT-1<br>• ANST/SPRI/FM4435/ES-1 | • ASCE Hazard tool<br>• Wind speed calculator |
| **Fire resistance** | | |
| Roofing systems | • UL Fire Classifications | |
| Integrate walls systems | • NFPA 285 compliance | |

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**Integrated Building Envelopes**

| | |
|---|---|
| **Design awareness and considerations** | Data centers demand significantly higher airtightness than typical commercial or office buildings. Integrated building envelope strategies should account for enhanced sealing expectations and may warrant verification of airtightness performance. |

## Performance Priorities

| | | | | |
|---|---|---|---|---|
| **Types of data centers** | | | | |
| Data center tier classification | [ ] Tier I | [ ] Tier II | [ ] Tier III | [ ] Tier IV |
| **Critical systems and environmental sensitivities** | | | | |
| • IT equipment (servers, storage, networking)<br>• Electrical infrastructure (UPS, switchgear, generators)<br>• Cooling systems (CRAC units, chillers, cooling towers) | | | • Fire suppression systems<br>• Monitoring and control systems (BMS, DCIM)<br>• Humidity control systems | |
| **Design sensitivity and building envelope implications** | | | | |
| Roofing system | [ ] Yes | [ ] No | FM Insured | |
| Integrated wall system | [ ] Yes | [ ] No | NFPA 285 Compliance | |
| Airflow, pressurization, and contaminant control | • Confirm continuity and performance of air barrier systems.<br>• Coordinate envelope design with mechanical pressurization strategy.<br>• Validate compartmentalization and pressure zoning for critical spaces.<br>• Specify door seals, vestibules, and entry filtration to prevent moisture collection.<br>• Include construction-phase protection measures to maintain envelope integrity. | | | |
| Thermal and moisture control | • Model dew point location to prevent condensation within assemblies.<br>• Include envelope commissioning and performance testing protocols.<br>• Ensure continuous thermal insulation across building envelope transitions<br>• Specify continuous air and vapor barrier based on climate and interior conditions.<br>• Coordinate HVAC humidity control with envelope moisture management. | | | |
| Waterproofing systems and drainage paths | • Identify site specific needs to determine moisture-resistant requirements.<br>• Include watertightness testing protocols.<br>• Understand detail flashing, sealants, and transitions to prevent water entry.<br>• Install integrated leak detection systems (e.g., conductive roofing system primer) | | | |
| Vibration-prone infrastructure | • Review vibration isolation strategies at critical areas.<br>• Specify resilient insulation systems that can absorb or dampen minor vibrations. | | | |
| Penetrations and system integrations | • Minimize and seal penetrations.<br>• Provide access to critical areas for maintenance. | | | |
| **Maintenance protocols** | | | | |
| Scheduled maintenance | • HVAC services (rooftop units, condensers, chillers)<br>• Generator exhaust inspections<br>• Solar panel cleaning or repair (if installed)<br>• Drainage system cleaning (roof drains, scuppers, gutters)<br>• Roof membrane inspections for damage from foot traffic or equipment<br>• Plenum inspection for roof leaks or condensation<br>• Wall and ceiling seal verification around openings for ducts, pipes, and wiring | | | |

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**Integrated Building Envelopes**

| Other considerations | |
|---|---|
| • International Building Code (IBC)<br>• International Energy Conservation Code (IECC)<br>• Texas Department of Insurance (TDI)<br>• California Code Regulations, Title 24 | • Florida Product Approval<br>  ○ HVHZ (High Velocity Hurricane Zone)<br>  ○ Non-HVHZ (Non-High Velocity Hurricane Zone)<br>• FM Insured Roofing System |

## Analyze Site and Environmental Conditions

Understanding site conditions and protecting data centers from extreme weather are essential to long-term building performance. Early analysis helps identify risks, guide system selection, and prevent costly surprises. Factors such as performance requirements, wind loads, fire resistance, and local codes influence wall assembly design, cladding attachment, roof wind-uplift resistance, and perimeter edge metal detailing.

**Design awareness and considerations**

- **Hurricanes and tornados**: Specify high wind resistant roofing and metal edge requirements.
- **Seismic activity:** Verify roofing, wall, and waterproofing warrantable expansion joint details.
- **Hail:** Specify a coverboard and high-impact membrane to protect insulation and roofing.
- **Extreme vapor drive:** Contact Carlilse Design Services for an energy modeling review.
- **Wildfire risk:** Specify Class A fire-rated materials.
- **High-level solar exposure:** Consider white PVC and TPO for UV resistance and reflectivity.
- **Soil and ground water contaminants:** Verify waterproofing protects occupants from contaminant transmission.

### Wind Exposure and Weather Extremes

| Site specific risks | | | | | |
|---|---|---|---|---|---|
| [ ] Yes | [ ] No | Hurricanes | [ ] Yes | [ ] No | Seismic activity |
| [ ] Yes | [ ] No | Snow loads | [ ] Yes | [ ] No | Flood zones |
| [ ] Yes | [ ] No | Construction-generated moisture | [ ] Yes | [ ] No | Wildfire risk |
| [ ] Yes | [ ] No | High-level solar exposure | [ ] Yes | [ ] No | Tornados |
| [ ] Yes | [ ] No | Hail | [ ] Yes | [ ] No | Extreme vapor drive |
| **Notes** | | | | | |

### Site Conditions

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| [ ] Yes | [ ] No | Geotechnical report | | | | | | |
| **Soil conditions** | | | | | | | | |
| [ ] Yes | [ ] No | Expansive or unstable soils | [ ] Yes | [ ] No | Methane | [ ] Yes | [ ] No | Sulfates |
| [ ] Yes | [ ] No | Hydrocarbons | [ ] Yes | [ ] No | Chloride | [ ] Yes | [ ] No | Other |
| [ ] Yes | [ ] No | Radon | [ ] Yes | [ ] No | Saltwater | | | |

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**Integrated Building Envelopes**

| | | | | | |
|---|---|---|---|---|---|
| **Water table** | | | | | |
| Describe location of water table relative to bottom of slab: | | | | | |
| [ ] Yes | [ ] No | Hydrostatic pressure | | | |
| **Drainage strategy** | | | | | |
| Describe drainage strategy: | | | | | |
| [ ] Yes | [ ] No | Dewatering plan | [ ] Temporary | [ ] Permanent | |
| [ ] Yes | [ ] No | Site grading | | | |
| [ ] Yes | [ ] No | Sub-slab drainage | | | |
| **Energy modeling** (collect information needed for each wall or roof condition) | | | | | |
| Classification | [ ] Short - up to 35’-0” (10 meters) | [ ] Tall - greater than 35’-0” [10 meters) | | | |
| Building height: | | | | | |
| Building moisture | [ ] Low moisture load | [ ] Medium moisture load | [ ] High moisture load | | |
| Assembly location: | [ ] Vertical wall (90 degrees) | [ ] Horizontal roof (0 degrees) | | | |
| Exterior surface color and texture (e.g., red brick): | | | | | |
| Interior surface coating/finish (e.g., latex paint, vinyl wallpaper): | | | | | |

## Account for Operational Demands

Designing for operational realities is essential to ensure the building envelope performs reliably under the unique stresses of data centers. These demands influence system selection, detailing, and long-term maintenance.

**Design awareness and considerations**

- **Maintenance access:** Specify protection mats or walk pads in high traffic areas.
- **Equipment penthouse:** Consider feasibility to simplify access and limit roof penetrations.
- **Rooftop equipment:** Insulate and raise curbs to limit roof membrane heat exhaust exposure.
- **Penetrations:** 6” [150 mm] minimum clearance between penetrations for optimal flashing

### Operational Demands

| | | | | | |
|---|---|---|---|---|---|
| **Heavy equipment loads** | | | | | |
| [ ] Yes | [ ] No | Chillers | [ ] Yes | [ ] No | Control systems and monitoring |
| [ ] Yes | [ ] No | Cooling towers | [ ] Yes | [ ] No | Fire suppression system |
| [ ] Yes | [ ] No | Dehumidification systems | [ ] Yes | [ ] No | Other |
| [ ] Yes | [ ] No | Generator exhausts | [ ] Yes | [ ] No | |
| **Maintenance Access** | | | | | |
| Allow safe, non-invasive access for inspection and repair that do not compromise roofing continuity or warranty eligibility. | | | | | |
| Access points | [ ] Walkways | [ ] Roof hatches | [ ] Removable panels | [ ] Equipment penthouse | |

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**Integrated Building Envelopes**

| Notes |
|---|

## Anticipate Continuous Insulation

Continuous insulation (CI) is critical for maintaining thermal stability in data centers, where tightly controlled temperatures affect equipment performance and cooling efficiency. Design insulation holistically across all assemblies so thermal control layers remain continuous and support the performance of adjacent control layers.

**Design awareness and considerations**

- **Expansion joints:** Coordinate thermal protection around expansion joints
  - Verify warranty requirements at this critical tie-in location.

### Continuous Insulation

| Implement uninterrupted thermal control |
|---|
| • Design insulation continuously at underslab, below-grade, walls, and roof assemblies to prevent thermal breaks.<br>• Identify minimum thermal resistance requirements. |
| **Verify thermal bridging challenges** |
| Slab-to-wall: |
| Wall-to-roof: |
| Penetrations: |
| Framing supports: |
| Cladding supports: |
| **Notes** |

## Design for Redundancy and Resilience

In data center facilities, discontinuities in the air and thermal control layers directly increase infiltration loads and cooling energy demand. Maintaining envelope continuity is a primary driver of both operational efficiency and long-term durability, not just code compliance. When these barriers are truly continuous and coordinated, they maintain stable interior conditions, reduce energy loads, and prevent degradation in environments where precise climate control and uptime are essential.

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**Integrated Building Envelopes**

**Design awareness and considerations**

### Pre-applied waterproofing

- **Structural slab thickness:** 24” [600 mm] or greater may require rebar removal if the membrane is damaged during construction. Specify a high-puncture resistance pre-applied waterproofing system to protect against construction site damage.
- **Concrete coverage:** Verify waterproofing concrete coverage requirements.
  - Typical systems recommend 10” [225 mm] minimum structural concrete coverage to allow for 6” [150 mm] flashing and 3” [75 mm] swellable waterstop.
  - Enhanced detailing: May require increased concrete coverage. Refer to product specific details for detailing requirements.
- **Secured pipe stub out:** Limit pipe stub out length so base of pipes are accessible for hand-flashing and proper termination sealing.
  - Typical range depending on site conditions: 9-18” [225-450 mm]

### Underslab and foundation wall waterproofing

- Underslab and foundation wall waterproofing tie-in is a critical juncture. Contact Carlisle Design Services for project specific recommendations.
- Specify a critical tie-in compatibility warranty to ensure chemical and adhesion compatibility. Refer to Specification Coordination Strategies section of this Design Guide Checklist.

### Prefabricated drainage composite

- Consider a drainage composite with a poly backing to protect waterproofing from embedment or damage during backfill placement.

## Integrated Below-Grade Systems

| | | | | |
|---|---|---|---|---|
| **Integrated slab systems** | | | | |
| Subbase preparation: [ ] Mud slab | [ ] Compacted gravel | [ ] Compacted earth | | |
| [ ] Yes | [ ] No | Contaminants identified in soil | If yes, list: | |
| [ ] Yes | [ ] No | Pre-applied underslab waterproofing | | |
| [ ] Yes | [ ] No | Structural slab greater than 24” [600 mm] | | |
| **Integrated foundation wall system** | | | | |
| [ ] Cast-in-place concrete | [ ] Precast concrete | [ ] Shotcrete | [ ] Concrete Masonry Units (CMU) | |
| [ ] Yes | [ ] No | Pre-applied foundation wall waterproofing | Location(s): | |
| [ ] Yes | [ ] No | Post-applied foundation wall waterproofing | Location(s): | |
| [ ] Yes | [ ] No | Insulation | Minimum R-value: | Minimum compression strength (lb/sf): |
| [ ] Yes | [ ] No | Prefabricated drainage composite | | |
| **Site conditions** | | | | |
| [ ] Yes | [ ] No | Slab anchor design | [ ] Sleeve | [ ] Blocked out |
| [ ] Yes | [ ] No | Support of excavation (SOE) | Type and design: | |
| [ ] Yes | [ ] No | SOE retention anchors and tiebacks | Type and design:<br>Dimensions: | |
| [ ] Yes | [ ] No | Rakers and walers | Type and design: | |
| [ ] Yes | [ ] No | Rakers and waler removal | Removal process: | |

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**Integrated Building Envelopes**

| | | | |
|---|---|---|---|
| [ ] Yes | [ ] No | Elevator pit | |
| [ ] Yes | [ ] No | Non-standard detail considerations | Conditions: |
| **Waterstops** | | | |
| [ ] Yes | [ ] No | Swells in contact with water | |
| [ ] Yes | [ ] No | Chemical grout | |
| **Notes** | | | |

**Design awareness and considerations**

- **Roof drains:** Specify roof drains with clamping rings where waterproofing will be installed
- **Watertightness verification:** Consider electronic leak detection and long-term continuously monitored watertightness for critical building types where pinpointing exact areas of damage, and real time monitoring of waterproofing and traffic coating systems.
- **Deck type:** Waterproofing and traffic coating systems are typically installed over structural concrete decks. Contact Carlisle Design Services for applications installed onto roof deck board over a steel deck.

### Integrated Decks and Traffic Area Systems

| | | | | |
|---|---|---|---|---|
| **Integrated deck and traffic areas** | | | | |
| Deck type: | [ ] Structural concrete | [ ] Roof deck board over steel deck | [ ] Other | |
| Waterproofing type: | [ ] Protected waterproofing | [ ] Traffic coating | | |
| [ ] Yes | [ ] No | Prefabricated drainage composite | | |
| [ ] Yes | [ ] No | Insulation | Minimum R-value: | Minimum compression strength (lb/sf): |
| Overburden type: | [ ] Concrete | [ ] Pavers | [ ] Vegetative roofing | [ ] Other |
| [ ] Yes | [ ] No | Structurally sloped deck to drains, scuppers, or edge | | Slope: |
| **Building use at deck and traffic areas** | | | | |
| [ ] Yes | [ ] No | Pedestrian traffic | [ ] over occupied space | [ ] Over unoccupied space |
| [ ] Yes | [ ] No | Vehicular traffic | [ ] over occupied space | [ ] Over unoccupied space |
| [ ] Yes | [ ] No | Solar panels | | |
| [ ] Yes | [ ] No | Vegetated roofing | | |
| **Drainage** | | | | |
| Drainage outlet type: | [ ] Roof drains | [ ] Scuppers | [ ] Gutters at edge | |
| **Watertightness verification** | | | | |
| Watertightness testing: | [ ] Electronic Leak Detection (ELD) | [ ] Flood test | | |
| Long-term monitoring: | [ ] Quality control (passive) | [ ] Continuously monitored (active) | | |

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**Integrated Building Envelopes**

| Notes |
|---|
| |

**Design awareness and considerations**

- **Exterior above-grade wall to below-grade waterproofing:** Coordinate below-grade waterproofing and insulation tie-in to above-grade wall.
- **NFPA 285 wall assembly compliance:**
  - Coordinate and cross reference integrated wall system components with manufacturer provided NFPA 285 compliant wall assemblies. Air barrier, insulation, and metal panel manufacturers are common resources for evaluated wall systems.
  - Verify rough opening detail requirements per insulation type.

## Integrated Wall Systems

| Integrated wall systems | | | | |
|---|---|---|---|---|
| Base wall system: | [ ] Steel studs | [ ] Concrete | [ ] CMU | [ ] Other |
| Floor line fire-stopping: | [ ] None | [ ] Mineral wool | [ ] Other | |
| Interior insulation: | [ ] None<br>[ ] Spray foam | [ ] Mineral fiber<br>[ ] Polyisocyanurate | [ ] Fiberglas batt<br>[ ] Other | [ ] Recycled denim |
| Interior vapor barrier: | [ ] None | [ ] Class A vapor barrier film | | |
| Exterior sheathing: | [ ] 1/2" thick, exterior grade gypsum sheathing<br>[ ] 5/8” thick, Type X exterior grade sheathing | | [ ] None<br>[ ] Other | |
| Air barrier: | [ ] Permeable | [ ] Non-permeable | | |
| Exterior insulation: | [ ] None | [ ] Polyisocyanurate | [ ] Expanded polystyrene | [ ] Other |
| Exterior veneer: | [ ] None<br>[ ] Masonry<br>[ ] Stucco | [ ] Aluminum composite materials (ACM)<br>[ ] Uninsulated metal panels, including steel, copper, or aluminum<br>[ ] Insulated concrete sandwich panels | | |

| Site specific conditions | | | |
|---|---|---|---|
| [ ] Yes | [ ] No | UV exposure limitations during construction | |
| [ ] Yes | [ ] No | Extreme weather conditions during construction | |
| [ ] Yes | [ ] No | Open joint cladding | |
| [ ] Yes | [ ] No | Enhanced drainage efficiency | Flow rate: |

| Notes |
|---|
| |

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**Integrated Building Envelopes**

**Design awareness and considerations**

- **Maximize insulation performance:**
  - Specify high-performance, R-7 per inch polyiso insulation in the roofing system.
- **Promote positive drainage:** Contact Design Services for roofing system and tapered insulation design assist.
  - Verify roof top units do not impede drainage path.
  - Align drains for optimal drainage efficiency.
- **Watertightness verification:** Consider electronic leak detection and long-term continuously monitored watertightness for critical building types where pinpointing exact areas of damage, and real time monitoring of roofing system. Contact Carlisle Design Services for long-term monitoring solutions.

## Integrated Roofing Systems

| | | | |
|---|---|---|---|
| **Integrated roof systems** | | | |
| Roof deck type: | [ ] Steel, less than 22 gauge<br>[ ] Steel, 22 gauge or heavier<br>[ ] Structural concrete | [ ] Lightweight insulating concrete over steel<br>[ ] Other | |
| [ ] Yes [ ] No | Deck level air and vapor barrier | | |
| [ ] Yes [ ] No | Insulation | Minimum R-value: | |
| [ ] Yes [ ] No | Roof deck board | | |
| Roofing system: | [ ] EPDM (Ethylene Propylene Diene Monmer) Thermoset Single-Ply Roofing<br>[ ] PVC (Polyvinyl Chloride) Thermoplastic Single-Ply Roofing<br>[ ] TPO (Thermoplastic Polyolefin) Thermoplastic Membrane Roofing | | |
| [ ] Yes [ ] No | Structurally slopes deck to drains, scuppers, or roof edge | Slope: | |
| **Building use at roof(s)** | | | |
| [ ] Yes [ ] No | Unoccupied roofing system | | |
| [ ] Yes [ ] No | Mechanical unites | | |
| [ ] Yes [ ] No | Solar panels | | |
| **Drainage** | | | |
| Drainage outlet type | [ ] Roof drains | [ ] Scuppers | [ ] Gutters at roof edge |
| **Overburden type** | | | |
| [ ] None | [ ] Pavers | [ ] Vegetative roof system | [ ] Other |
| **Site specific conditions for design pressures based on ASCE 7** | | | |
| • Building location (address)<br>• Risk category assessment | | • Surrounding environments<br>• Building height | |
| **Watertightness verification** | | | |
| Watertightness testing: | [ ] Electronic Leak Detection (ELD) | [ ] Flood test | |
| Long-term monitoring: | [ ] Quality control (passive) | [ ] Continuously monitored (active) | |

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| Notes |
|---|
| |

**Design awareness and considerations**

- Roof-to-wall transitions are often the most failure-prone areas. Address critical tie-ins early in design to maintain continuous air, vapor, and thermal control layers.
- Specify a critical tie-in compatibility warranty to ensure chemical and adhesion compatibility. Refer to Specification Coordination Strategies section of this Design Guide Checklist.
- Contact Carlisle Design Services for project specific design review and critical tie-in warrantability.

## Critical Tie-ins

**Critical tie-in conditions**

[ ] Below-grade
- [ ] Below slab-to-foundation wall
- [ ] Below-grade waterproofing-to-below-grade insulation and drainage
- [ ] Foundation wall-to-above grade wall

[ ] Insulation and cladding attachments

[ ] Above grade wall-to roofs and decks
- [ ] Above grade wall-to-wall insulation and cladding
- [ ] Above grade wall-to-deck
- [ ] Above grade wall-to-roofing

[ ] Roofing
- [ ] Roofing-to-deck
- [ ] Roofing-to-perimeter edge metal
- [ ] Roofing-to-gutters

**Expansion joints**

| | | | |
|---|---|---|---|
| [ ] Yes | [ ] No | Slab | Anticipated movement: |
| [ ] Yes | [ ] No | Foundation walls | Anticipated movement: |
| [ ] Yes | [ ] No | Above grade walls | Anticipated movement: |
| [ ] Yes | [ ] No | Decks and traffic areas | Anticipated movement: |
| [ ] Yes | [ ] No | Roofing | Anticipated movement: |

**Penetrations**

| | | | |
|---|---|---|---|
| [ ] Yes | [ ] No | Pipe clusters | Location(s): |
| [ ] Yes | [ ] No | Penetration exceeds 180°F (82° C) | Location(s): |

**Notes**

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## Coordinate Specifications for Integrated Performance

Coordinating specifications is essential for translating performance goals into enforceable actions across the project team. Defining building envelope performance goals early sets the foundation for how control layers like air, vapor, thermal, and moisture barriers are managed throughout design and construction.

### Key Specification Sections

**Division 01 General Requirements**

[ ] Section 01 35 13 – Special Project Procedures at Critical Tie-ins
[ ] Section 01 43 39 – Mockups
[ ] Section 01 83 00 – Facility Shell Performance
[ ] Section 01 91 00 – Commissioning

**Division 03 Concrete**

[ ] Section 03 15 13 – Waterstops

**Division 07 Thermal and Moisture Protection**

Waterproofing products
[ ] Section 07 13 00 – Sheet Waterproofing
[ ] Section 07 14 00 – Fluid-Applied Waterproofing
[ ] Section 07 18 00 – Traffic Coatings

Insulating products
[ ] Section 07 21 00 – Thermal Insulation

Air barrier products
[ ] Section 07 26 00 – Vapor Retarders
[ ] Section 07 27 00 – Air Barriers

Roofing products
[ ] Section 07 53 23 – EPDM Thermoset Single-Ply Roofing
[ ] Section 07 54 19 – PVC Thermoplastic Single-Ply Roofing
[ ] Section 07 54 23 – Thermoplastic Polyolefin (TPO) Membrane Roofing
[ ] Section 07 71 00 – Roof Specialties

### Specification Coordination Strategies

**Section 01 35 13 – Special Project Procedures at Critical Tie-ins**

Administrative requirements
[ ] Assign critical tie-in warranty submittal responsibility to the General Contractor.
[ ] Define entity to maintain records of site tests and inspection reports related to critical tie-ins
[ ] Require pre-installation meetings to verify project specific conditions and warranty eligibility.

Quality assurance and quality control
[ ] Verify manufacturers of products at critical tie-ins provide building envelope system compatibility warranties.
[ ] Require mock-ups for critical tie-in conditions.
[ ] Conduct site tests and inspections.
[ ] Verify air and watertightness at penetrations by subsequent trades.

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## Plan for Verification Compliance

Performance verification is essential to ensure building envelopes function as intended and remain protected under manufacturer warranty. These steps help reduce risk, support commissioning, and maintain long-term reliability. Understanding manufacturer and installer workmanship warranties at critical tie-ins is key to ensuring accountability and compliance.

### Quality Assurance and Quality Control

| Mockups | |
|---|---|
| [ ] Below slab-to-foundation wall | [ ] Above grade wall-to-roofing |
| [ ] Below-grade waterproofing-to-below-grade insulation | [ ] Roofing-to-deck |
| [ ] Foundation wall-to-above grade wall | [ ] Roofing-to-perimeter edge metal |
| [ ] Above grade wall-to-wall insulation | [ ] Roof edge-to-gutters |
| [ ] Above grade wall-to-architectural metal panels | [ ] Complex geometries |
| [ ] Above grade wall-to-deck | |
| **Site tests and inspections** | |
| [ ] Substrate verification | [ ] Building envelope system integrity test |
| [ ] Tie-in at critical transitions | [ ] Final inspection of tie-ins prior to covering |
| [ ] Penetrations by subsequent trades | [ ] Electronic Leak Detection – quality control (passive) |

| | |
|---|---|
| **Design awareness and considerations** | Contact Carlisle for system specific warranty eligibility, installation guidance, and critical tie-in warranty program information. |

### Carlisle Integrated Building Envelope Solutions

| Carlisle companies with products eligible for inclusion in a building envelope system compatibility warranty | |
|---|---|
| Roofing | Carlisle SynTec Systems \| (800) 453-2554 \| www.carlislesyntec.com<br>Versico Roofing Systems \| (800) 992-7663 www.versico.com |
| Waterproofing, air barriers, and traffic coatings | Henry a Carlisle Company \| (800) 486-1278 \| www.henry.com |
| Insulation | Hunter Panels \| (888) 746-1114 \| www.hunterpanels.com<br>Insulfoam \| (800) 248-5995 \| www.insulfoam.com |
| Architectural metals | Citadel Architectural Products \| (800) 446-8828 \| www.citadelap.com<br>PAC-CLAD Petersen \| (847) 981-4707 \| www.pac-clad.com |